

purulent material, or aspirates; (ii) a forensic swab, adhesive tape lift, or card; or (iii) an environmental air filter, water filter, and swab.

5. The apparatus of claim 1 wherein the nucleic acid purification matrix is selected from the group consisting of silica membranes, silica beads, silica magnetic beads, ion exchange resins, and ion exchange beads.

6. The apparatus of claim 1 wherein said at least one microfluidic element is selected from the group consisting of: channels, reservoirs, active valves, passive valves, pneumatically actuated valves, reaction chambers, mixing chambers, venting elements, access holes, pumps, metering elements, mixing elements, heating elements, magnetic elements, reaction chambers, filtration elements, purification elements, drive lines, and actuation lines.

7. The apparatus of claim 1, wherein the apparatus can be placed into or interfaces with another instrument that performs at least one of thermal cycling, capillary electrophoresis, microfluidic electrophoresis, nucleic acid fragment sizing, short tandem repeat (STR), Y-STR, and mini-STR, single nucleotide polymorphism, PCR, highly multiplexed PCR, Real-time-PCR, Reverse Transcription PCR, sequencing, hybridization, microarray, VNTR, immunoassays, mass spectroscopy and RFLP analyses.

8. The apparatus of claim 1, wherein said lysis reagent is guanidinium and said ethanol reagent is ethyl alcohol and wash reagent is an ethanol based wash reagent.

9. The apparatus of claim 1, wherein an aggregate fluid volume of the sample chamber, and the pre-filled lysis, ethanol, wash and elution reagent storage chambers is between about 1 and 1000 mL.

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